

REMARKS

This Amendment, in connection with the following remarks, are submitted as fully responsive to the Office Action. Claims 1, 13, 19-21, 23-25 and 33 have been amended, and claim 2 canceled. No new matter has been added. Support for the amendments to said claims can at least be found, for example, in the Specification at ¶¶ 13, 22, 35-37, 56 and 97. Claims 1, 13, 20, 23, 25 and 33 are the independent claims. Favorable reconsideration is requested.

Claims 1-34 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,970,464 to Apte et al. (“Apte”) in view of U.S. Patent No. 4,975,840 to DeTore et al. (“DeTore”).

Claim 1, as amended, is directed to a method for predicting the profitability of an insurance policy. The claimed method comprises the steps of gathering policyholder data including premium and loss data for storing in a database and identifying external data sources directed to at least one of business level data and household demographics data. The external data sources are such as have a plurality of external variables to be used in predicting the profitability of the insurance policy. The method further provides for associating the external variables with the policyholder data, evaluating the associated external variables against the policyholder data to identify the individual external variables predictive of the insurance policy's profitability, and creating an independently weighted multivariate statistical model based on the individual external predictive variables.

A noteworthy feature of the method of claim 1, as amended, is the independently weighted statistical model based upon the individual external predictive variables. As described

in the specification, the insurance industry has not effectively included the use of external data sources in the estimation of the profitability of a commercial insurance policy. *Specification* at ¶ 9. Thus, although external data sources offer one of the best opportunities to obtain the characteristics of a business and/or the practices of an owner of the business property to be insured, commercial insurance companies use of such data to supplement their conventional pricing methods has been at best haphazard, inconsistent, and non-systematic. *Id.*

The present invention describes in detail various sources of such external data, and how that data can be used. Sources of such external data can be, for example, individual business level databases such as Dunn & Bradstreet (D&B) and Experion. *Specification* at ¶ 35. Other types of external data can be, for example, census data available from both United States government agencies as well as third party vendors, such as, for example, the EASI product. *Id.* at ¶ 36. Additional, county level data can be used including such information as, for example, historical weather patterns, hail falls, etc. *Id.*

According to a described exemplary embodiment, after collection, such external data can, for example, be culled to eliminate highly repetitive predictor variables, and the remaining variables can, for example, be included in a multivariate statistical model. *Specification* at ¶¶ 83-89. In such a model each predictor variable can, for example, be assigned a separate co-efficient. *Id.* at ¶¶ 86-87. Thus, the present invention is a data driven approach, where identification of external predictor variables, and the weights to be assigned them, are generated from a statistical analysis operating on large amounts of historical data obtained from a variety of sources, as described above. *Id.* at ¶¶ 70-89. The statistical analysis, not an “expert module” determines the optimal weighting of such predictor variables:

The development process of the predictive statistical model generates the mathematical formula's coefficients. One example of the form of such a simplified equation might be as follows: $a_0 + a_1x_1 + a_2x_2 + \dots + a_Nx_N = y$. In this example, the "a's" are the coefficients, the "x's" are the individual predictor variables, and "y" is the score, i.e., the indication of commercial insurance profitability. The "a₀" is the mathematical "y-intercept".

Id. at ¶ 86.

In the Office Action (at page 3), Apte is cited at 3:5-19 and at Figures 1-14 as teaching the use of external data sources. Apte is also cited at 3:44-53, 6:44-7:17, and Figs. 1-14 as teaching creating a statistical model based upon external data. However, in contrast to the claimed invention, there is no teaching or suggestion in Apte for using any external data sources, or for using predictive variables obtained from such external data sources, to generate an independently weighted multivariate statistical model.

The Office Action (beginning at the bottom of page 4) cites to DeTore at Abstract; 4:36-53; and Figs. 1-12 as referring to the creation of a statistical model utilizing a multivariate statistical approach. The Examiner noted in particular "DeTore's teaching of multiple variables in statistically assessing risks." However, DeTore is not seen by Applicants as curing the deficiencies of Apte as a reference against claim 1, as amended. Thus, Applicants respectfully traverse the application of DeTore as a reference against claim 1, as amended, and assert that Apte and DeTore, even when combined, do not teach operating upon external data to create a statistical model utilizing a multivariate statistical approach.

DeTore is directed to a 1980s vintage artificial intelligence ("AI") system, of the expert system type. As such, it seeks to use the accumulated knowledge of experts to evaluate risk of a proposed insurance policy and thus make underwriting decisions. "Underwriting knowledge base 24 is the information base that drives the system." DeTore at 4:54-55. The knowledge base incorporates the information contained in the underwriting manuals used by the

assignee of DeTore, as well as factual elements and programmed knowledge in the form of expert modules. *Id.* at 4:55-5:3. DeTore is designed for non-expert underwriters to underwrite potential insurance business. They do this by accessing the expert system.

DeTore describes a qualitative, rule driven approach, which uses various rules to match identified “problems” from the application data base to a corresponding “impairment” from the underwriting database, and then assigns weights (debits or credits) to the identified problems based upon information (*i.e.*, other rules) in the underwriting database. Once the weights have been assigned, they are then combined to generate a risk classification for the proposed insurance. DeTore at 5:40 – 6:2. Thus, in DeTore, any contribution from a “problem” is determined *a priori*, by an expert module. If there is no expert module available for a given “problem” the problem is normally left “unresolved” unless the underwriter (now an actual human) is himself an “expert” in the subject area of concern. *Id.* at 15:20-34. ***At no time is external data mined to identify predictor variables and then further processed to assign weights consistent with the data given a statistical analysis.*** All DeTore teaches is assigning weights to internal variables *a prioi*, using expert modules or, where no expert module is available, using a human expert acting “on the fly.” *Id.*

Moreover, in DeTore, because the input information to this process comes from the application data base, and is thus provided by insurance applicants, it is not even external. Thus, even combining DeTore and Apte, one would not obtain evaluating the associated external variables against the policyholder data to identify the individual external variables predictive of the insurance policy’s profitability, and creating a an individually weighted multivariate statistical model based on the said individual external predictive variables, as is recited in claim 1.

For at least these reasons, amended claim 1 is asserted as patentably distinguished over Apte and DeTore, whether alone or in combination. The remaining independent claims, claims 13, 20, 23, 25 and 33, recite similar features as does claim 1, and are thus also patentable over Apte and DeTore. The dependent claims are thus also urged as patentable for similar reasons.

If any questions remain as to the patentability of the pending claims, Applicants respectfully request the opportunity to have an interview with the Examiner, review same, and present their point of view. The Examiner is thus invited to notify Applicants' undersigned attorney if such questions remain so that an interview can be scheduled.

No additional fees are believed due herewith. If any additional fees are due, the Commissioner is hereby authorized to charge any fee deemed necessary for the entry of this Amendment to Deposit Account No. 50-0540.

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Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Aaron S. Haleva', is written over a horizontal line.

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